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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,542

11/10/2006

Mats Sundstrom

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FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
220 Fifth Avenue
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EXAMINER

ZOLLINGER, NATHAN C

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

12/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,542	Applicant(s) SUNDSTROM ET AL.	
	Examiner NATHAN ZOLLINGER	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2009 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Response to Amendment

The amendment filed on August 28, 2009 has been entered. Applicant has amended claims 1 and 4-6 and cancelled claims 2-3. Moreover, Applicant has amended the specification and drawings prompting the Examiner to withdraw all previous objections and 112 rejections. Claims 1 and 4-6 are pending in this application.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title, "Compressor" is a generic label which provides little information as to the main subject matter in this invention, namely that of compressor speed control. Examiner recommends a more informative title such as, "Compressor speed control while refilling a pressure tank or container."

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 3746

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, claims 4-6 all discuss a compressor which is “optimized” for an internal volume factor. While this phrasing expresses a desired outcome for the compressor (that the compressor pressure will be less than $P2 + .85*(P1-P2)$, etc.), it lacks any structural guidance or instruction on how to modify the compressor in order to satisfy this outcome.

Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4-6 all discuss a compressor which is “optimized” for an internal volume factor. The applicant is careful to indicate the eventual behavior this optimization will cause (that the compressor pressure will be less than $P2 + .85*(P1-P2)$, etc.) but fails to include any specific structural modifications to carry out this optimization.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3746

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata (4,756,669) in view of Totsuka (US 6,599,093) and in further view of Suzuura (JP2000045957A).

Claim 1: Hata discloses a compressor (1) which is adapted to work against a pressure container (2) whose pressure is allowed to vary between a lowest pressure P2 (P1) and a highest pressure P1 (P4), said compressor being driven by an electric motor (5), wherein in an operating range defined by a pressure interval of the pressure container the motor has a characteristic of operating at a reduced speed during a reduced torque loading, i.e., during the refilling of a pressure container (see col. 1, lines 26-40; col. 2, lines 37-41; Fig. 1, "Low speed operation"). Hata does not disclose a screw type compressor. Totsuka teaches using a screw type compressor (1, col. 4, line 17). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a compressor as taught by Totsuka in order to benefit from a compressor which operates with pulse free operation, low maintenance, and no valves. Hata also does not disclose using a commutator motor. Suzuura teaches a compressor which uses a commutator motor (Abstract). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a motor as taught by Suzuura in order to benefit from the low initial cost, high reliability, and simple control of motor speed of such motors. Hata, Totsuka and Suzuura teach the claimed invention except for including the following: halving of a load torque of said

Art Unit: 3746

motor will result in an increase of at least six percent in a speed of said motor, wherein the electric motor has a characteristic such that halving of the load torque of said motor will result in an increase in the speed of said motor of at most 100 percent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to precisely tune the motor within an operational boundary when the torque is reduced, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 4: Hata, Totsuka and Suzuura teach the limitations of claim 1, discussed previously. While Hata does not teach that the compressor is optimised for an internal volume factor at which a pressure of the compressor is lower than $P_2 + 0.85 \cdot (P_1 - P_2)$ at an opening instance, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the compressor in this manner, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 167 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim 5: Hata, Totsuka and Suzuura teach the limitations of claim 4, discussed previously. While Hata does not teach a compressor optimised for an internal volume factor at which the pressure of the compressor is equal to the lowest pressure P_2 in the pressure container at the opening instance it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the compressor in this manner, since it has been held that discovering an optimum value of a result

Art Unit: 3746

effective variable involves only routine skill in the art. *In re Boesch*, 167 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim 6: Hata, Totsuka and Suzuura teach the limitations of claim 4, discussed previously. While Hata does not teach a compressor optimised for an internal volume factor at which the pressure of the compressor is lower than the lowest pressure P2 in the pressure container at the opening instance it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the compressor in this manner, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 167 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN ZOLLINGER whose telephone number is 571-270-7815. The examiner can normally be reached on Monday - Thursday, 9 a.m. - 4 p.m. EST.

Art Unit: 3746

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Z./
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746